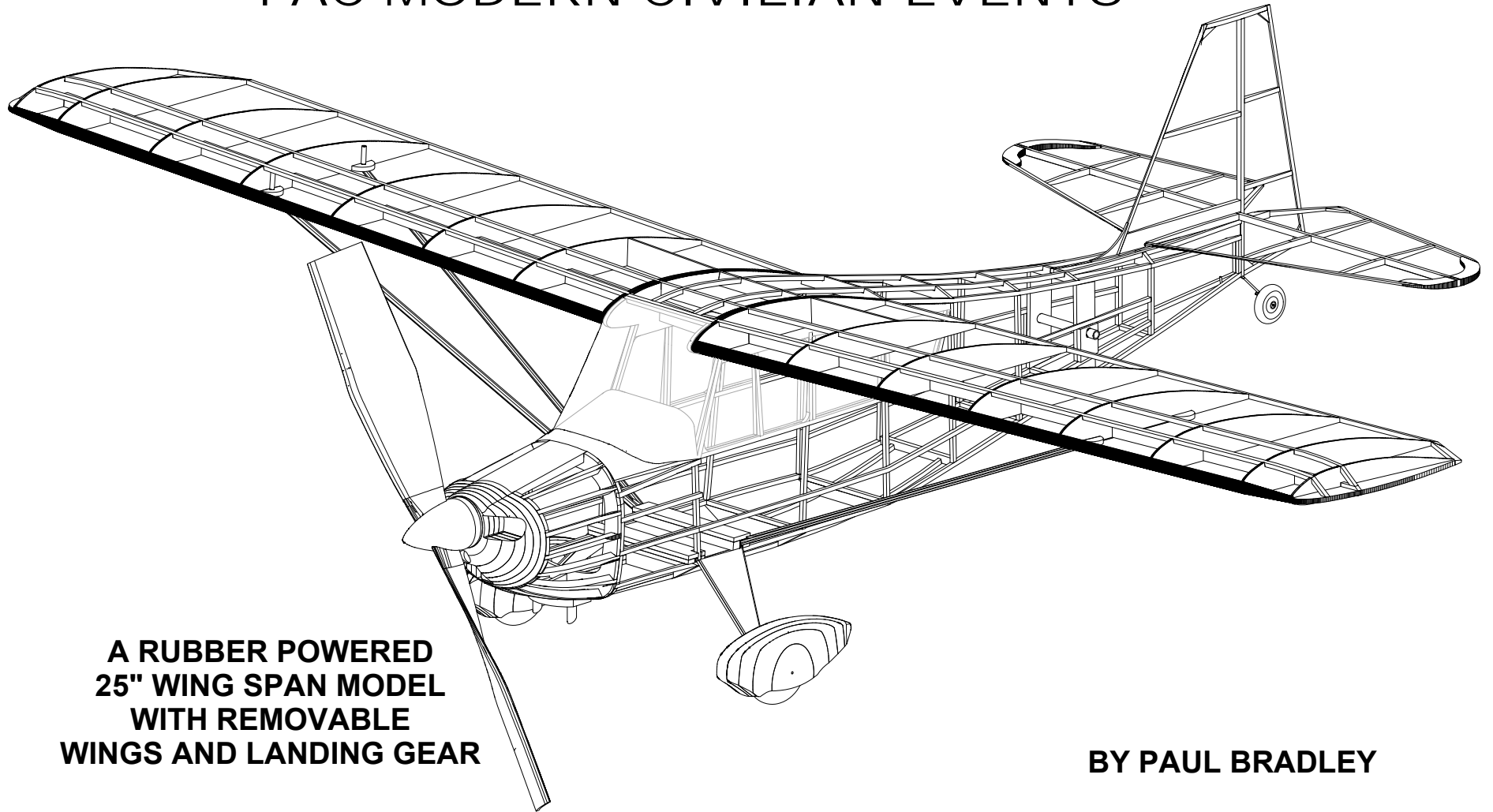


CHAMPION CITABRIA  
FOR  
FAC MODERN CIVILIAN EVENTS

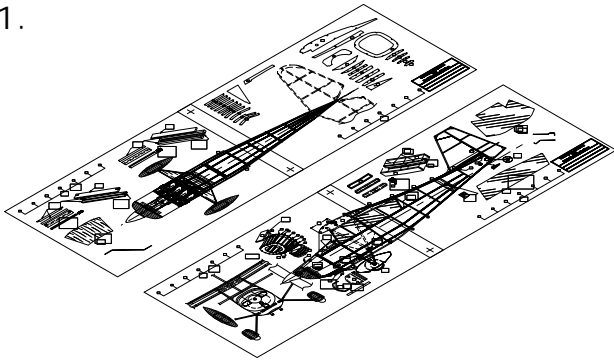


**A RUBBER POWERED  
25" WING SPAN MODEL  
WITH REMOVABLE  
WINGS AND LANDING GEAR**

**BY PAUL BRADLEY**

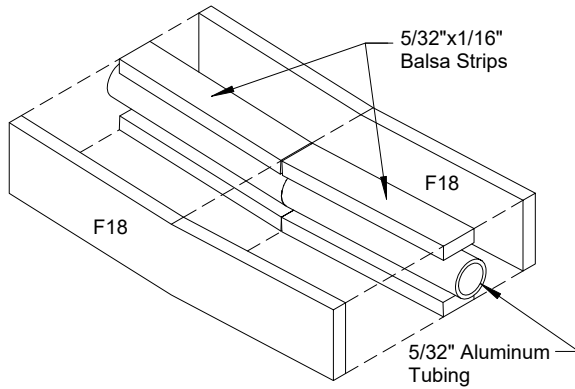
**ASSEMBLY GUIDE  
OCTOBER 2019**

1.



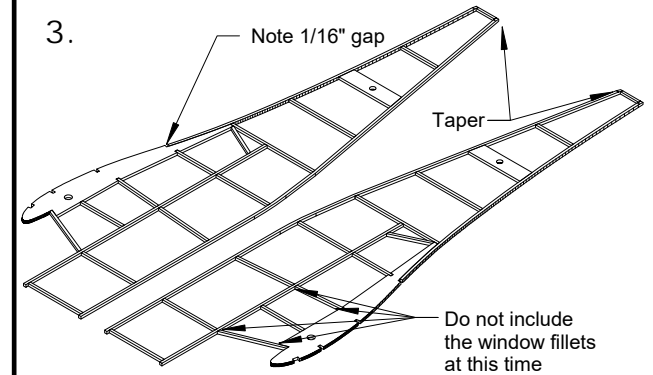
Tape the four fuselage plan pages together to form two building plan pages. Use the "+" marks for alignment of the pages.

2.



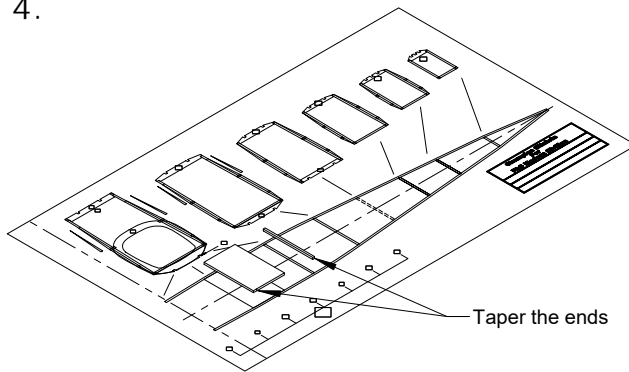
Make up the wing spar carry through as shown.

3.



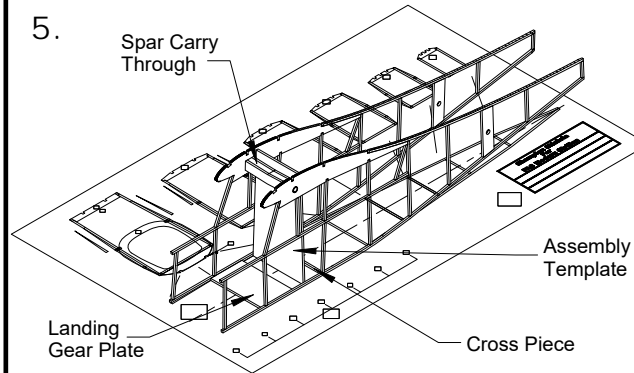
Build a left and right fuselage side as shown. After the glue is set remove the sides from the plan and sand a bevel at the rear on the inside face of each side. Use the plan as a guide.

4.



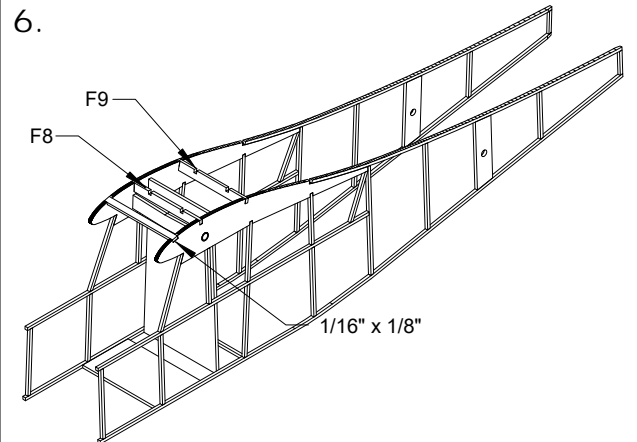
Using the fuselage bottom longeron and cross pieces plan, cut out the landing gear plate and the first bottom cross piece. They should have a slight vertical taper on the edges. Use the cross section drawings for a taper guide.

5.



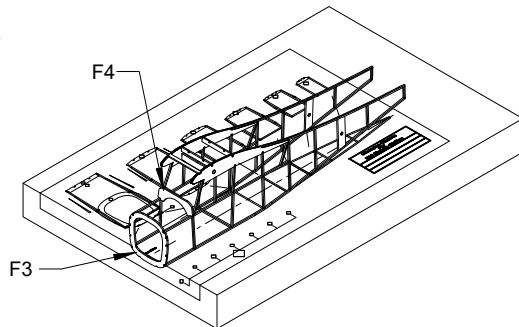
Using the fuselage assembly template shown on the plan and the wing spar carry through, landing gear mount plate, and the bottom cross piece behind the landing gear mount plate, assemble the two fuselage sides over the fuselage bottom plan as shown.

6.



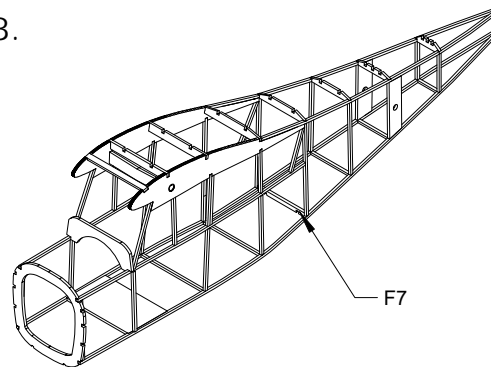
Add pieces F8 and F9 to the assembly. Also glue a piece of 1/16" x 1/8" balsa strip to the notches forward of F8.

7.



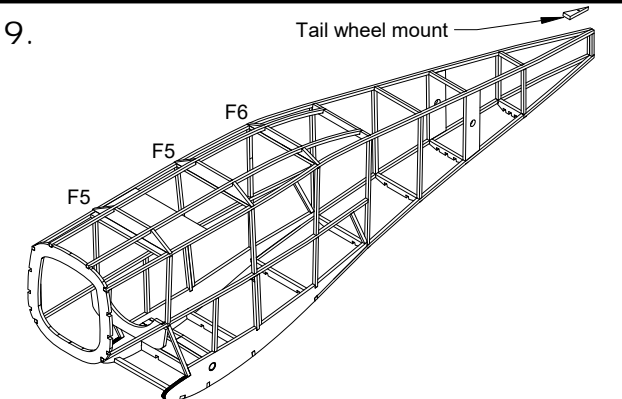
Place the fuselage bottom plan on your building board so the plan can be bent down over the edge along the fold line. Pin the fuselage assembly down over the plan. Pull the forward ends of the four longerons in and glue former F3 in place. Use the plan to keep things centered. Also glue F4 in place. Use the instrument panel cover pattern as a location guide.

8.

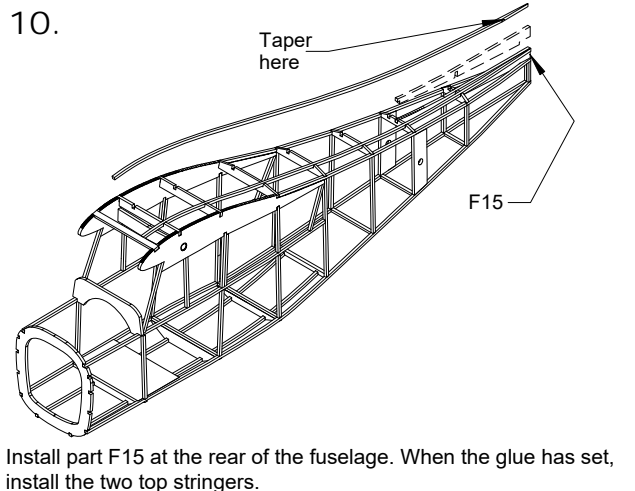


Pull the fuselage sides together at the rear. Use the plan as a guide to keep things centered and symmetrical. Once the glue is set, install the bottom cross pieces and the top F lettered pieces. Note where part F7 is used in place of a bottom cross piece. The top of the fuselage is narrower than the bottom.

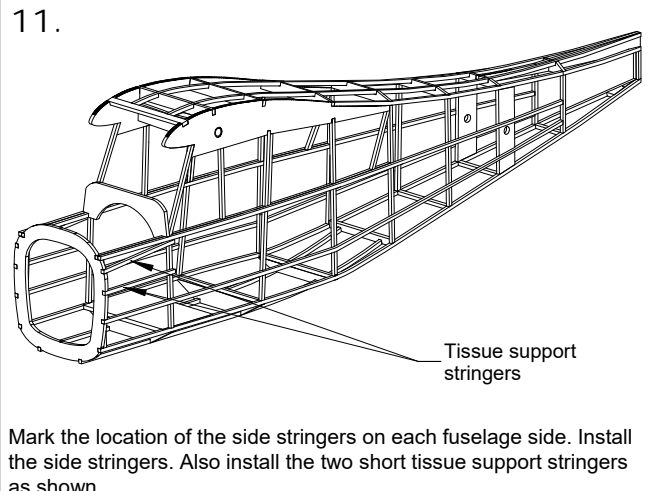
9.



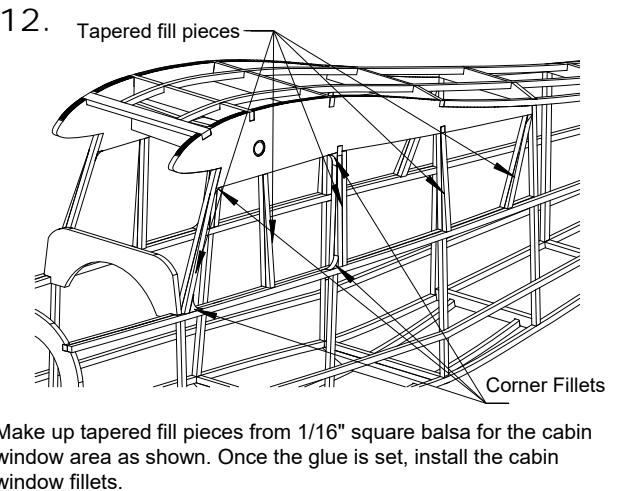
Install the bottom fuselage F number pieces that fit on the cross pieces and the landing gear plate. Also glue the tail wheel mount to the bottom of the fuselage as shown. Once the glue is set, install the bottom stringers as shown.



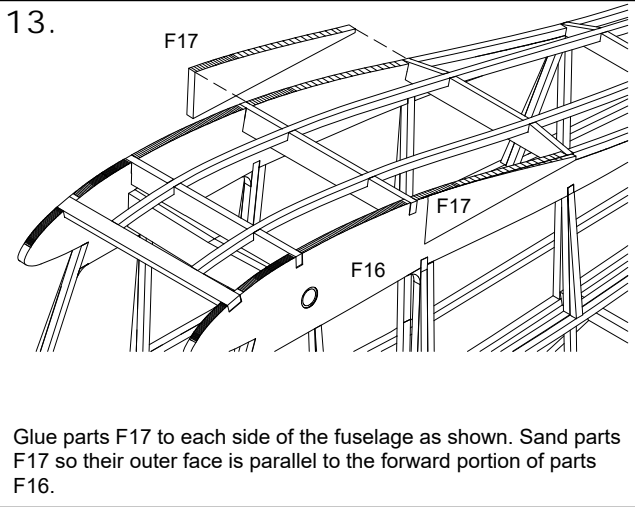
Install part F15 at the rear of the fuselage. When the glue has set, install the two top stringers.



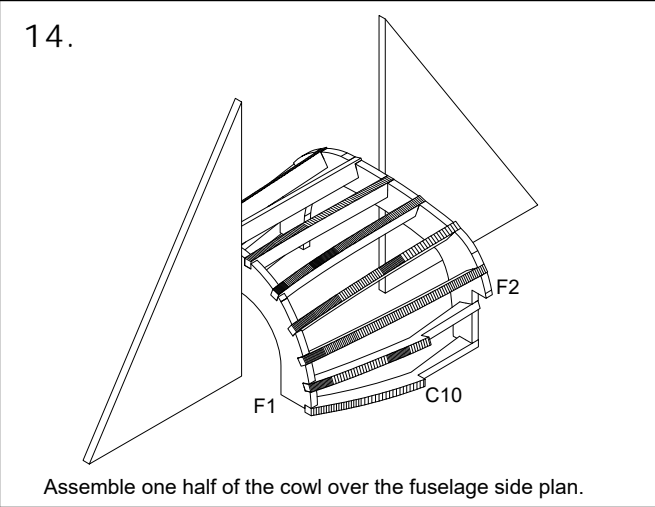
Mark the location of the side stringers on each fuselage side. Install the side stringers. Also install the two short tissue support stringers as shown.



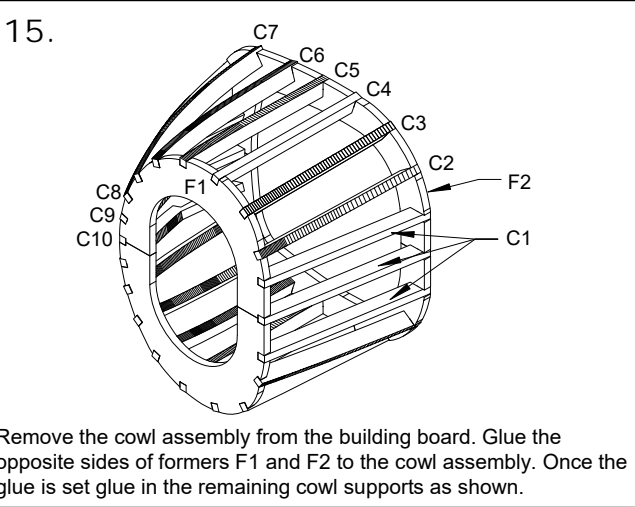
Make up tapered fill pieces from 1/16" square balsa for the cabin window area as shown. Once the glue is set, install the cabin window fillets.



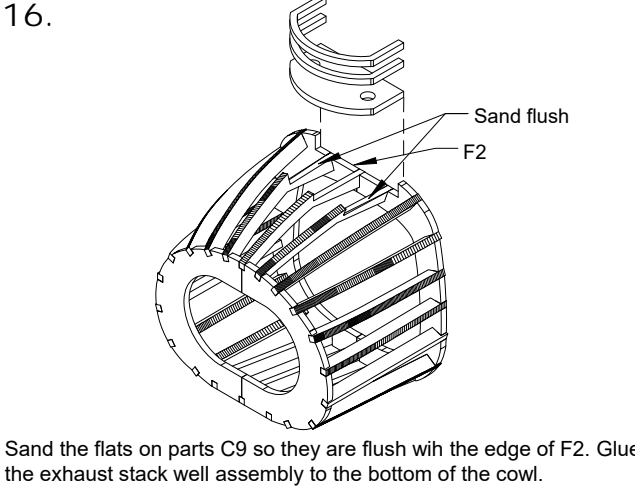
Glue parts F17 to each side of the fuselage as shown. Sand parts F17 so their outer face is parallel to the forward portion of parts F16.



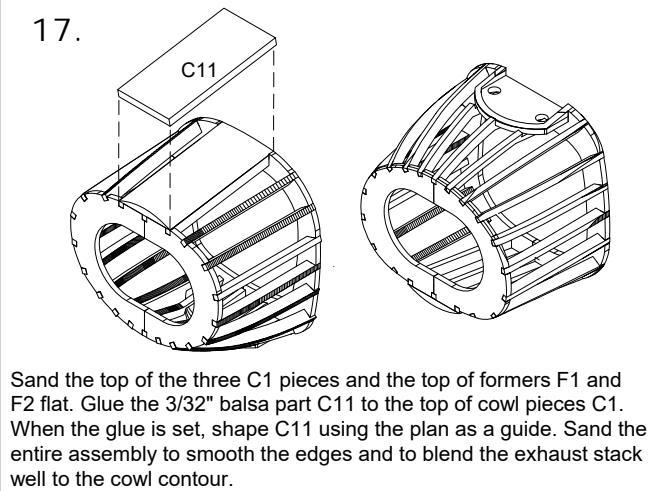
Assemble one half of the cowl over the fuselage side plan.



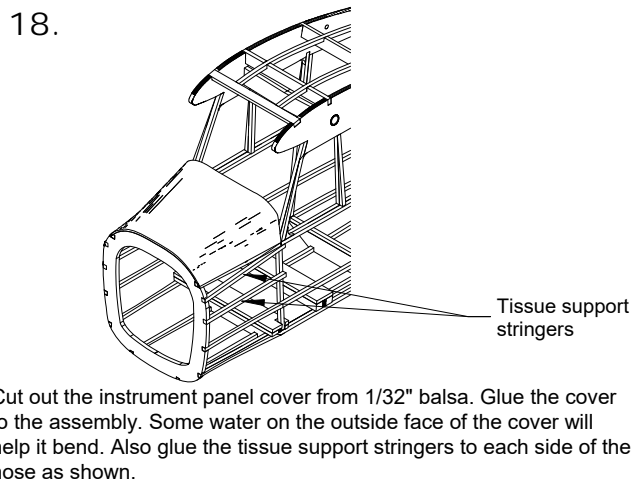
Remove the cowl assembly from the building board. Glue the opposite sides of formers F1 and F2 to the cowl assembly. Once the glue is set glue in the remaining cowl supports as shown.



Sand the flats on parts C9 so they are flush with the edge of F2. Glue the exhaust stack well assembly to the bottom of the cowl.

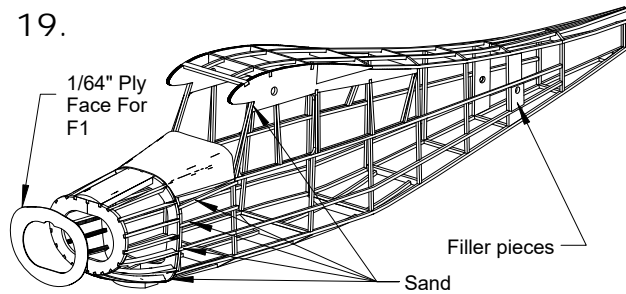


Sand the top of the three C1 pieces and the top of formers F1 and F2 flat. Glue the 3/32" balsa part C11 to the top of cowl pieces C1. When the glue is set, shape C11 using the plan as a guide. Sand the entire assembly to smooth the edges and to blend the exhaust stack well to the cowl contour.



Cut out the instrument panel cover from 1/32" balsa. Glue the cover to the assembly. Some water on the outside face of the cover will help it bend. Also glue the tissue support stringers to each side of the nose as shown.

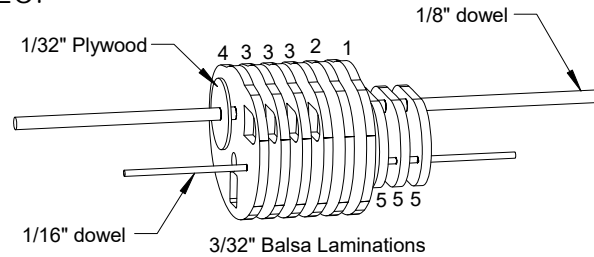
19.



Glue the cowl to the fuselage assembly. Also glue the motor anchor tube filler pieces to each side of the fuselage between the side stringers.

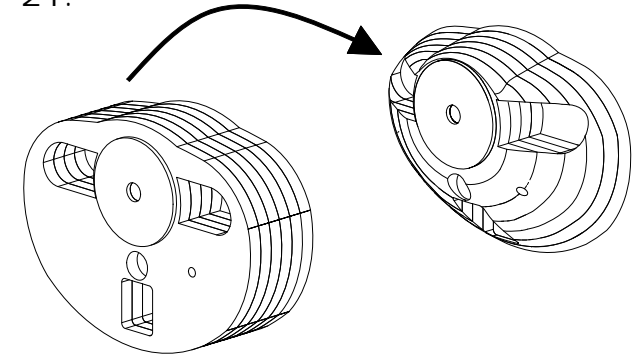
Carefully sand the fuselage to blend edges to the fuselage cross section shape. Glue the 1/64" plywood face for F1 to the forward face of F1. Sand inside edge of F1 to match the plywood face.

20.



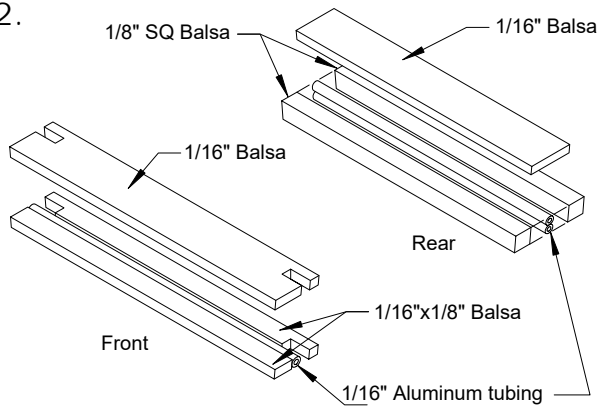
Glue the nose block laminations together as shown. Also glue the nose block key laminations to the back of the nose block. Use a piece of 1/8" dowel to maintain alignment of the parts, but do not glue the dowel to the assembly. Also use a piece of 1/16" dowel to help maintain alignment. The 1/16" dowel is glued to the assembly. It is trimmed and sanded during shaping of the nose block.

21.



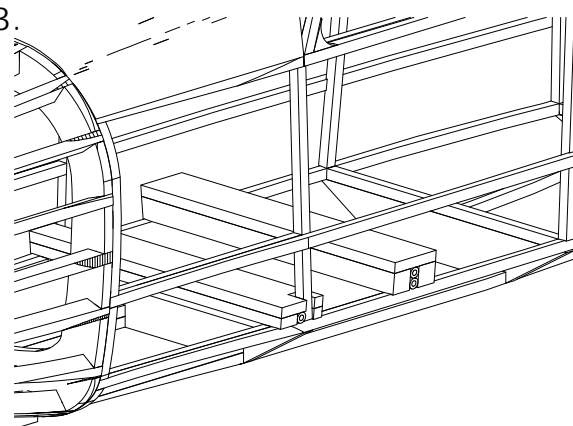
Rough shape the nose block using the plan as a guide. Place the nose block on the cowl and sand to the final shape shown on the plan. When finished, remove the nose block from the cowl.

22.



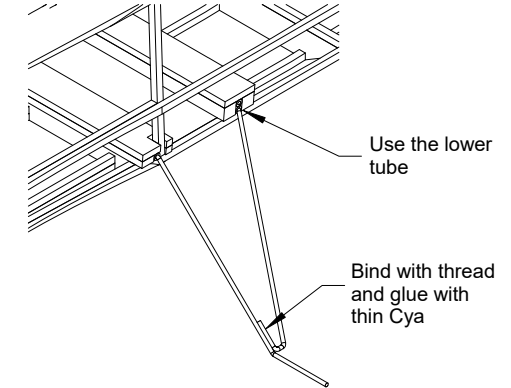
Make up the forward landing gear mount and the rear landing gear/wing strut mount as shown.

23.



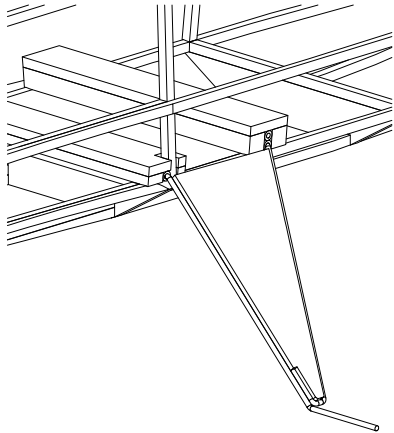
Install the forward and rear landing gear mounts as shown. The rear mount is aligned with the rear edge of the landing gear plate.

24.



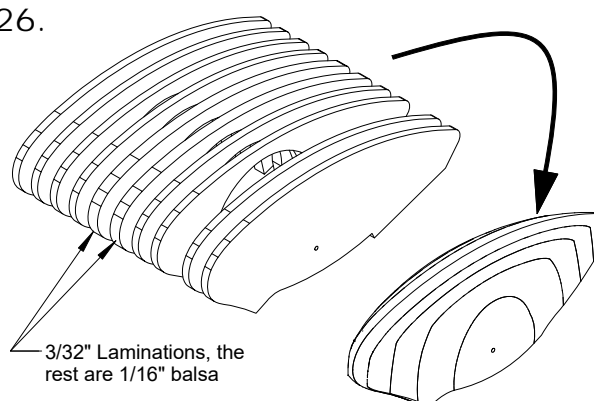
Bend the landing gear leg pieces from 1/32" piano wire. Use the plan bending guide for the rear pieces. Plug the landing gear leg pieces into their respective fuselage mount tubes. Bind the bottom joints with thread and apply thin Cya.

25.



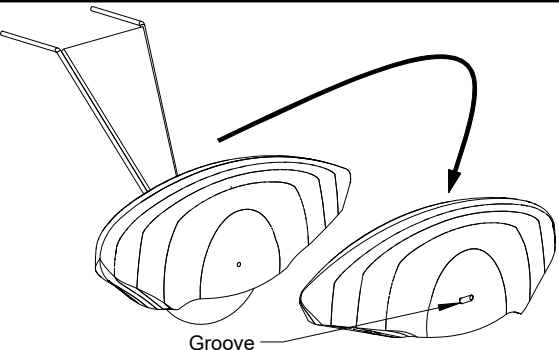
With the landing gear legs still plugged into the fuselage mounts, glue the 1/16" balsa filler pieces to the assemblies as shown.

26.



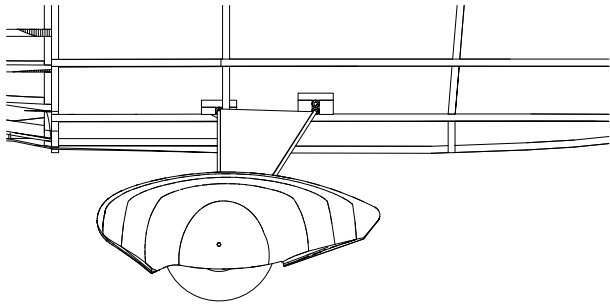
Glue the wheel pant laminations together. When the glue has set shape them using the plan as a guide. If not using commercial 1" diameter wheels or 3D printed wheels, make up the balsa wheels.

27.



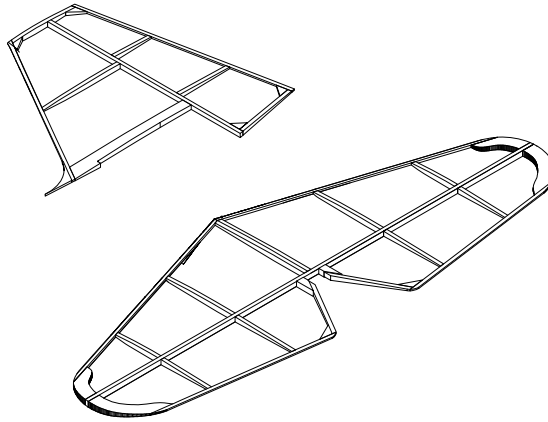
Slide a wheel into one of the wheel pants and then slide the assembly on to one of the landing gear assembly axes. Push the wheel pant up against the piano wire so it leaves a mark. Remove the wheel pant and cut a small groove at the mark left by the piano wire. Slide a wheel into the wheel pant and slide the assembly on to the axle. Tape it in place for now.

28.



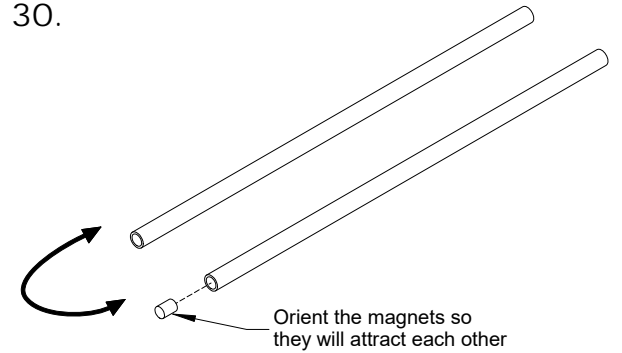
Follow the procedure in step 28 for the other wheel pant. When finished plug both landing gear assemblies in to the fuselage mounts. Looking from the side, align the wheel pants with each other. When satisfied with the alignment, glue the wheel pants to the landing gear assemblies.

29.



The tail surfaces are made from 1/16"x3/32" balsa strip stock. Sand the tail surfaces to a symmetrical profile after they are assembled.

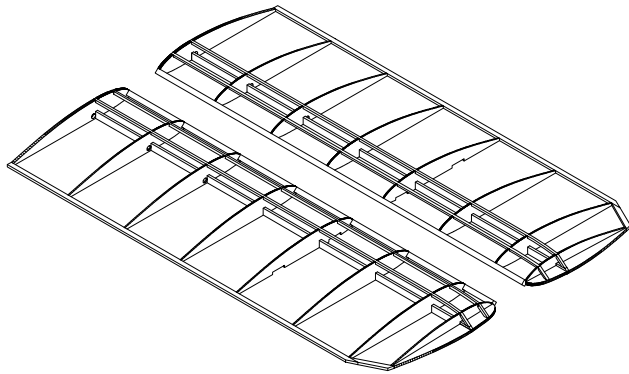
30.



Orient the magnets so they will attract each other

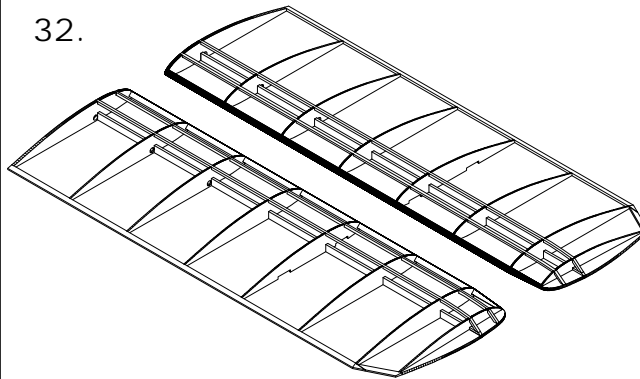
Using the plan as a guide, cut two 1/8" diameter aluminum wing spar tubes to length. Glue a .1" diameter magnet in one end of each wing tube. Make sure the polarity of the magnets is set so they will attract each other. You may have to drill out the tube ends to receive the magnets.

31.



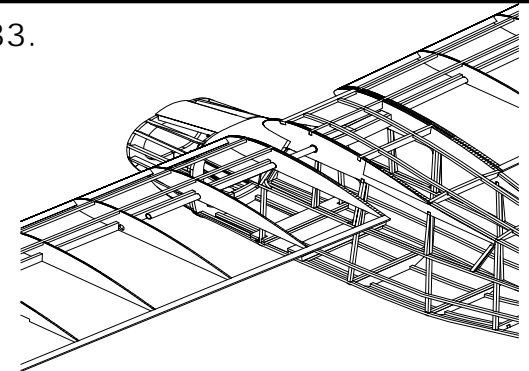
Build the wing panels over the plan. Do not install the wing spar tubes at this time.

32.



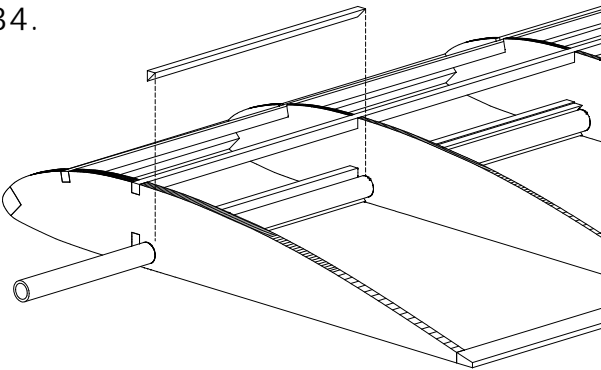
Remove the wing panels from the building surface after the glue sets. Trim the outlines and sand the leading and trailing edges along with the wing tips.

33.



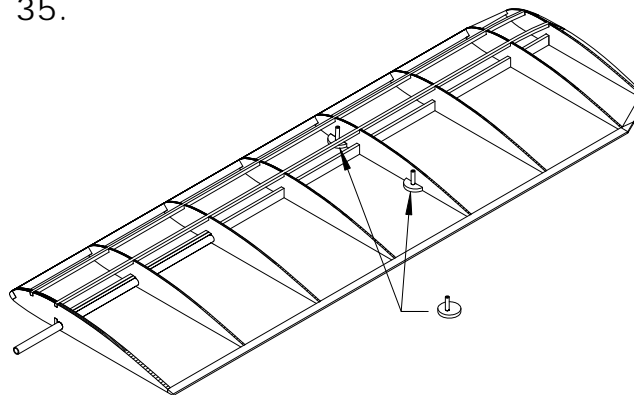
Slide the wing spar tubes into the fuselage tube with the magnets facing the center of the fuselage. Slide each wing panel on the spar tubes. Make sure the root ribs are a tight fit with the fuselage wing ribs. Glue the spar tubes to the wing panels. **GLUE THE ROOT RIB/SPAR TUBE JOINT AFTER THE PANELS ARE REMOVED.**

34.



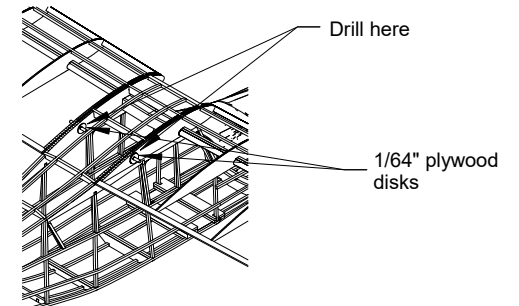
Remove the wing panels from the fuselage. Make up some triangular 1/16" square balsa strip stock. Glue lengths of the triangular strip stock to the top and bottom of the spar tubes and the main spar between the wing ribs as shown.

35.



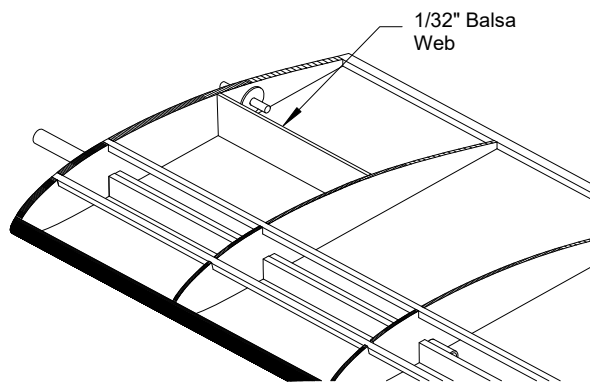
Make up the wing strut mounting pads as shown. Install the pads in each wing panel in the notches at the bottom of rib W3.

36.



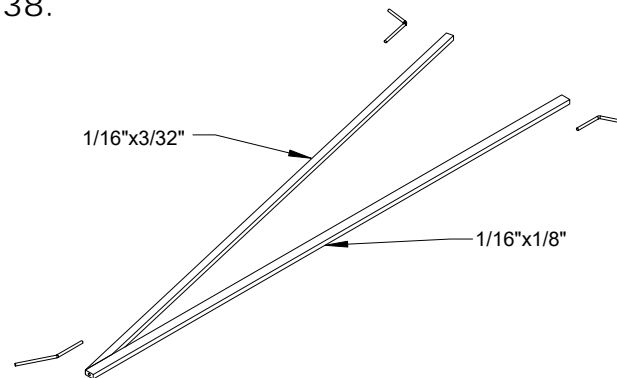
Slide each wing panel spar tube into the fuselage tubes. Carefully align each wing panel with the top of the fuselage wing mount plates. Drill 1/16" diameter holes through the root ribs and the wing mount plates as shown. Insert a length of 1/16" diameter dowel or aluminum tubing in each hole and glue it to the wing root rib. Be careful not to glue to the wing mount plate. Glue a 1/64" plywood disk on each side of the pin as shown. Be careful not to get glue in the wing root fuselage joint.

37.



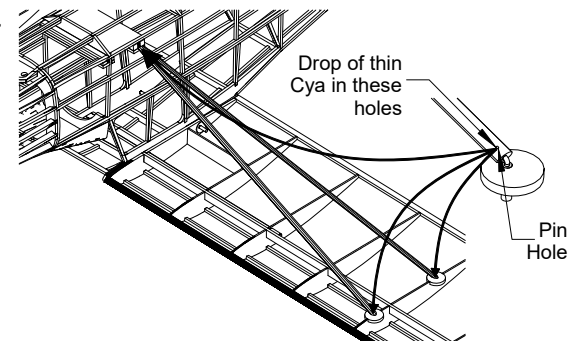
Glue the 1/32" balsa webs to each wing panel as shown.

38.



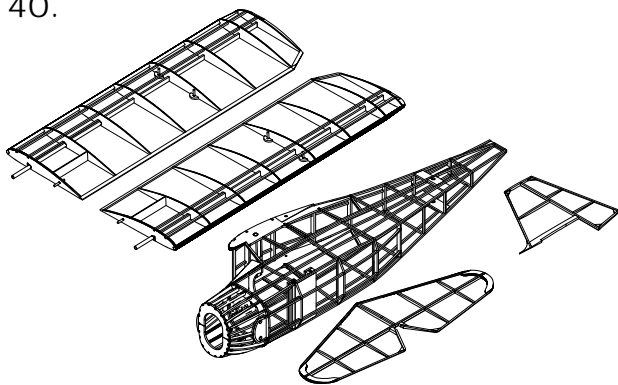
Make the wing struts from 1/16" x 1/8" and 1/16"x3/32" balsa strip stock. Bend the 1/32" piano wire joiners using the plan patterns.

39.



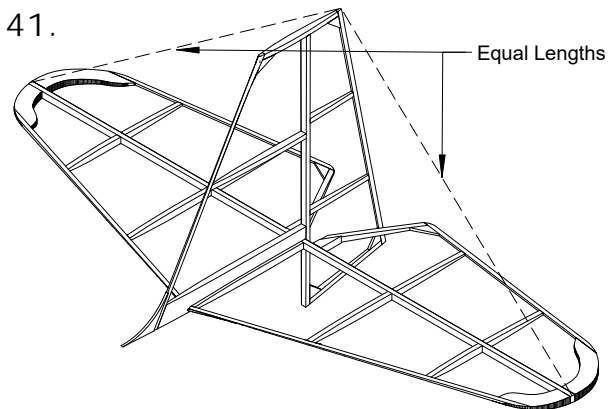
Sand the struts to a symmetrical cross section. Insert the joiners in the struts but do not glue yet. Check the fit of each strut on the model. Make any necessary adjustments. When satisfied with the fit and with the struts installed, make a pin hole in the struts over the piano wire joiners. Apply a small drop of thin Cya to each hole. Remove the struts and apply more Cya to each joiner.

40.



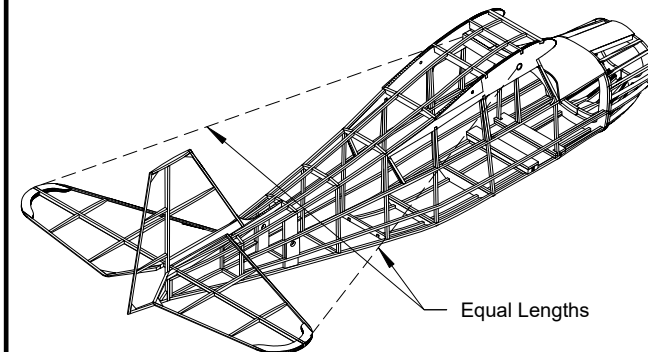
Cover the components of the model with tissue. The tissue is not shown in this or subsequent illustrations.

41.



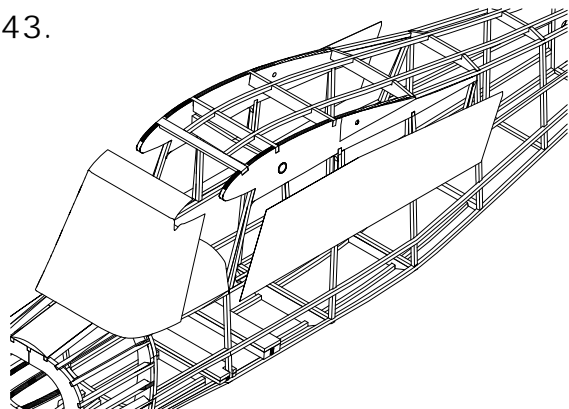
Glue the fin to the stab as shown. Make sure the fin is square to the stab by measuring the distance between the rear fin tip and the ends of the stab spar.

42.



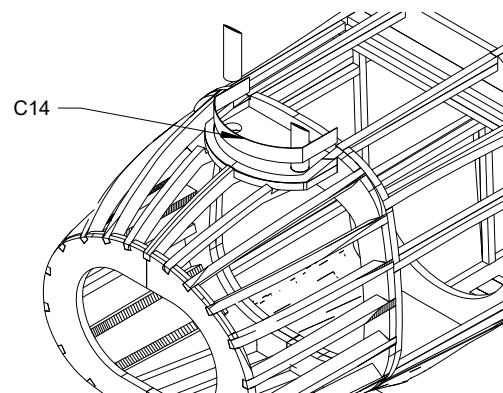
When the stab/fin joint glue is dry, glue the assembly to the fuselage. Make sure the distance between the stab spar ends and the wing spar carry through tube is equal on each side.

43.



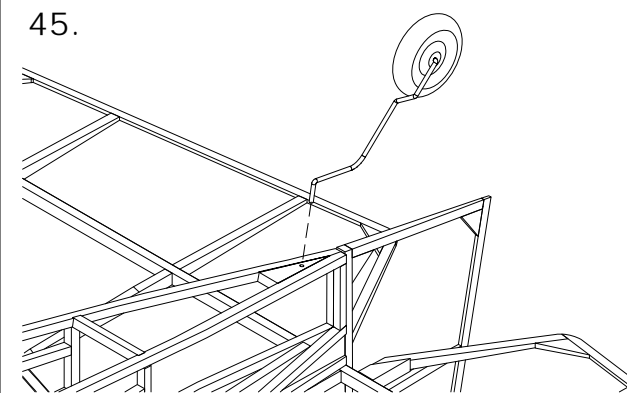
Install the windshield and side windows. Use thin (something like .003") clear plastic for the side windows and windshield. Note that the windshield wraps around the leading edge carry through.

44.



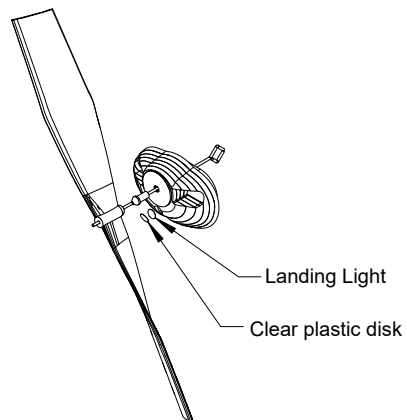
Make up the exhaust stacks from 1/8" aluminum tubing using the plan as a guide. Also make up the exhaust stack cowl shield part C14. The two exhaust stacks are inserted in the well plate. The shield fits inside the well opening.

45.



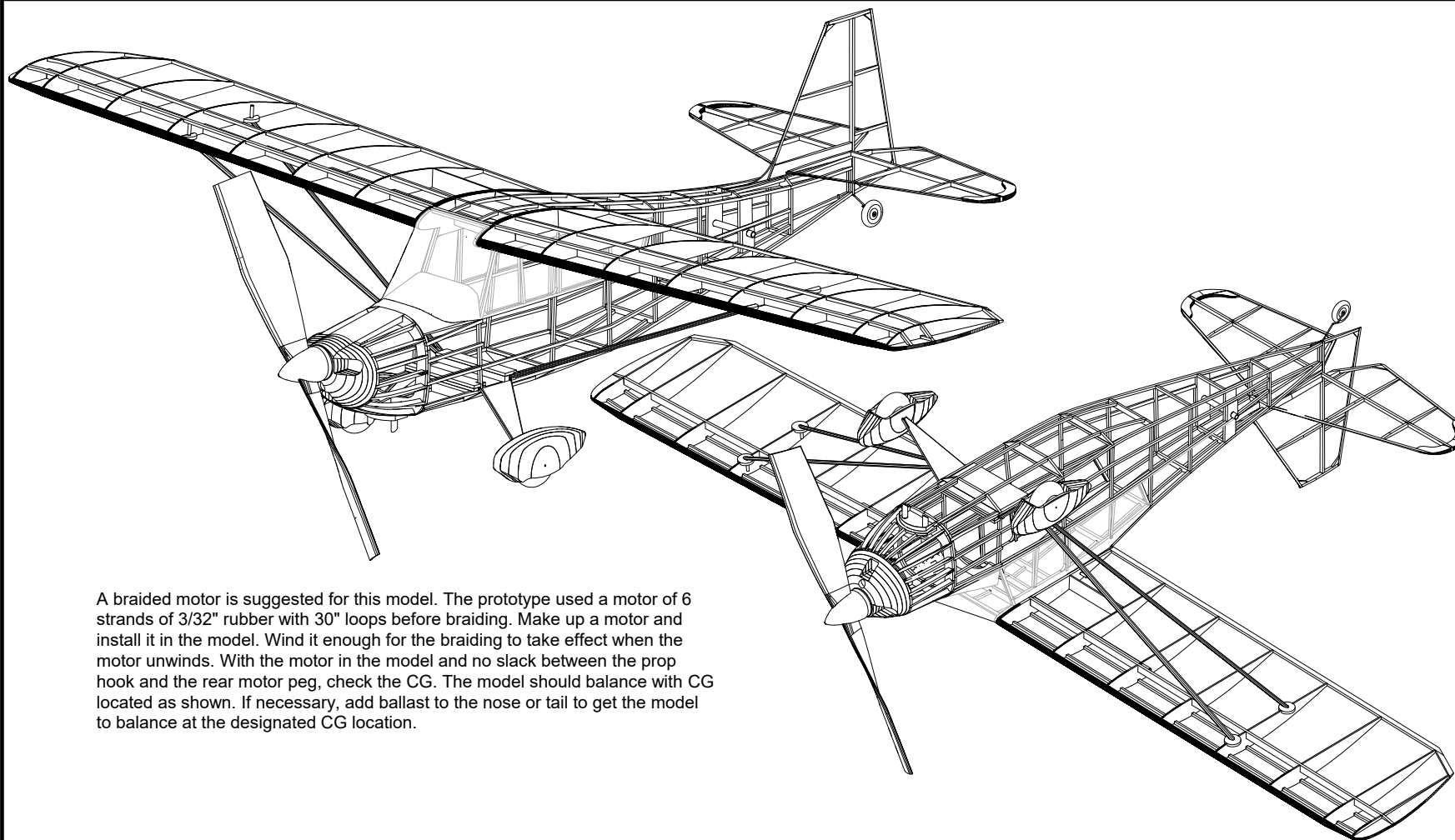
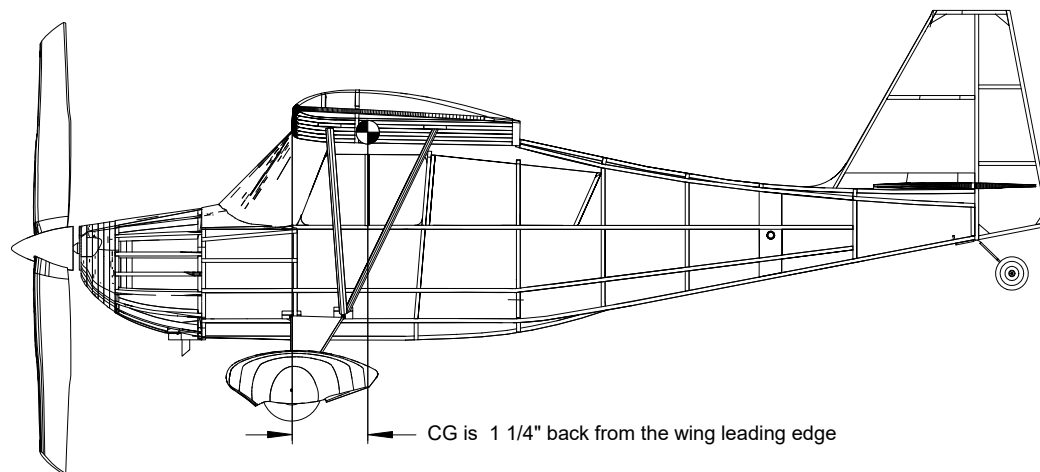
Bend the tail wheel leg from .025" piano wire. Install a 1/2" wheel and then glue the assembly to the bottom of the fuselage using the tail wheel mount plate.

46.



The propeller nose plug assembly is set up as shown. The prop shaft hook can be your preferred style. An 8" diameter prop is suggested. The landing light should also be installed as shown.

46.



A braided motor is suggested for this model. The prototype used a motor of 6 strands of 3/32" rubber with 30" loops before braiding. Make up a motor and install it in the model. Wind it enough for the braiding to take effect when the motor unwinds. With the motor in the model and no slack between the prop hook and the rear motor peg, check the CG. The model should balance with CG located as shown. If necessary, add ballast to the nose or tail to get the model to balance at the designated CG location.